<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Richland 2800 George Washington Way Richland, WA 99352

Tel: (509)375-3131

TestAmerica Job ID: 300-3998-1

TestAmerica Sample Delivery Group: WC1460

Client Project/Site: W16-009

For:

CH2M Hill Plateau Remediation Company PO BOX 1600 Mail Stop R3-50 Richland, Washington 99352

Attn: CPP Sample Management

Stre approx

Authorized for release by: 10/17/2016 6:44:51 AM Steven Campbell, Project Mgmt. Assistant steven.campbell@testamericainc.com

Designee for

Whitney Ritari, Project Manager I (509)375-3131 ext164 whitney.ritari@testamericainc.com

LINKS

Review your project results through

Total Access

Have a Question?



Visit us at: www.testamericainc.com

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this package. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a desingee as verified by the attached signature.

The laboratory is accredited to EPA 7196A in Solid and Chemical Materials, per Washington State Department of Ecology this is approved for non-discharge water samples. The sample/sample duplicate RPD agreement is not applicable if one or both results are less than five times the MDL.

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TestAmerica Job ID: 300-3998-1 SDG: WC1460

Client: CH2M Hill Plateau Remediation Company Project/Site: W16-009

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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

Practical Quantitation Limit

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Quality Control

Relative error ratio

TestAmerica Job ID: 300-3998-1

SDG: WC1460

Qualifiers

HPLC/IC

| Qualifier | Qualifier Description |
|-----------|--|
| D | The reported value is from a dilution. |
| U | Analyzed for but not detected. |

Glossary

PQL

QC

RER

RPD

TEF

TEQ

RL

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |

Case Narrative

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

Job ID: 300-3998-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative 300-3998-1

Comments

No additional comments.

Receipt

The samples were received on 9/16/2016 3:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

CH2MHill Plateau Remediation

Company

| 16-009-158 Page 1 of 1 |
|---------------------------|
|---------------------------|

| IICAU INCHINGIAHUH | CHAIN OF CUSTODY/SAMPLE ANALYSIS | SIS REQUEST | W1 |
|------------------------------------|---------------------------------------|---------------------------------|--------|
| | | | Pa |
| oyd C | Contact/Requester Karen Waters-Husted | Telephone No. 509-376-4650 | |
| W16-009 | Sampling Origin Hanford Site | Purchase Order/Charge Code 3 | 300071 |
| RCRA, SEPTEMBER 2016 | Logbook No. HNF-N-506 90/3 | Ice Chest No. N/A | |
| TestAmerica Incorporated, Richland | Method of Shipment GOVERNMENT VEHICLE | Bill of Lading/Air Bill No. N/A | |
| | | | |

POSSIBLE SAMPLE HAZARDS/REMARKS

Sample No.

Filter

Time

No/Type Container

1x125-mL P

300.0_ANIONS_IC: COMMON

48 Hours

Sample Analysis

S S

103%

Shipped To (Lab)

Protocol

RCRA

Priority:

30 Days

Project Title

SAF No.

Collector

Dave Floyd CHPRC

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

PRIORITY N/A Special Handling:N/A SPECIAL INSTRUCTIONS Hold Time

Offsite Property No.

N/A

Holding Time Total Activity Exemption: Yes 🗹 No Preservative

Page 5 of 18

300-3998 COC

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Relinquished By
Dave Floyd
CHPRC

Sign

Date/Time

J. Bock, TARL

SEP 1 & 2018 1-7

Date/Time

SEP 1 8 2016 /

Date/Time

SoilSedimentSolid

Drum Solids

Drum Liquids

O W TS SE

Wipe Liquid

Vegetation

= Sludge = Water = Oil = Air

Date/Time

Date/Time

Received By

Relinquished B\(\sqrt{\text{Wall}}\)
Lesty Wall
CHPRC

Relinquished By

Relinquished By

A-6004-842 (REV 2)

Date/Time

Disposed By

\$ 3997 3998

wells 400

B368P9

z

VSEP 1 6 78%

No/Type Container

1x125-mL P

300.0_ANIONS_IC: COMMON

Sample Analysis

Holding Time 48 Hours

Preservative Cool <=6C

Sample No.

Relinquished By Lesty West CHERC

Date/Time

Received]

J. Bock, TARL

SEP 1 8 2016 17.55

Received By

Matrix *

Drum Solids Drum Liquids

Relinquished By

Dave Floyd CHPRC Relinquished By

Relinquished By

PRINTED ON 8/8/2016

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

FSR ID = FSR8647

A-6004-842 (REV 2)

Disposed By

Date/Time

Date/Time

왉

₩ ST SE

Solid Water Sludge

Wipe Liquid Tissue

Date/Time

Received By

CH2MHill Plateau Remediation

Company

Collector

Dave Floyd CHPRC

Shipped To (Lab)

TestAmerica Incorporated, Richland

Method of Shipment Priority: 30 Days

GOVERNMENT VEHICLE

PRIORITY

SPECIAL INSTRUCTIONS

Hold Time

Total Activity Exemption: Yes 🗹

ď Offsite Property No.

N/A N/A

Bill of Lading/Air Bill No.

Special Handling:N/A

RCRA, SEPTEMBER 2016

W16-009

Sampling Origin

Contact/Requester

Karen Waters-Husted

Logbook No.

HNF-N-50690/2

Hanford Site

Purchase Order/Charge Code

300071

Telephone No.

Project Title SAF No.

Protocol

RCRA

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

W16-009-159 Page 1 of 1

509-376-4650

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Total Activity Exemption: Yes 🗹 No 🗌

N/A N/A

48 Hours

Preservative Cool <=6C

| CH2MHill Plateau Remediation Company | СН | AIN OF CUST | CHAIN OF CUSTODY/SAMPLE AN | ANALYSIS REQUEST |
|--|------------------------------|---------------------------|-----------------------------|-----------------------------|
| Collector Dave Floyd | Сол | Contact/Requester Kar | Karen Waters-Husted | Telephone No. 509-376-4 |
| SAF No. W16-009 | Samp | Sampling Origin Har | Hanford Site | Purchase Order/Charge Code |
| Project Title RCRA, SEPTEMBER 2016 | Logh | Logbook No. HNF-N- | HNF-N-506 9D/2 | Ice Chest No. N/A |
| Shipped To (Lab) TestAmerica Incorporated, Richland | | Method of Shipment GC | GOVERNMENT VEHICLE | Bill of Lading/Air Bill No. |
| Protocol RCRA | | Priority: 30 Days | PRIORITY | Offsite Property No. |
| POSSIBLE SAMPLE HAZARDS/REMARKS | | | SPECIAL INSTRUCTIONS | Hold Time Total Activ |
| ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1 | ulated for transportation pe | r 49 CFR / IATA Dangerous | N/A Special Handling:N/A | |
| Sample No. Filter * Date Time | No/Type Container | ler | Sample Analysis | Holding Time |
| B368N2 N WAIP 1 8 716 / プル | 1x125-mL P | 300.0 ANIONS IC: COMMON | C: COMMON | 48 Hours |

509-376-4650

C.O.C.#

W16-009-155 Page 1 of 1

10/17/2016 **7** of

300071

100 45h10m 3998

| FINAL SAMPLE DISPOSITION | Relinquished By | Relinquished By | Relinquished By Troy Bacon CHPRC | RejigquisheylBy CHPRC |
|--|-----------------|---|--|---|
| Disposal Method (e.g., Return to cu | | , | Troyl Bacon | Print Sign |
| Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Date/Time | Date/Time | Date/Time SEP 1 6 7016 ^{1Sや} | SEP 1 5 2016 / o40 |
| ess) | Received By | Received By | 1 | Received By Troy Bacon |
| Disposed By | | |). Bock. Tarl | Received By Print Sign Troy Bacon North Bacon |
| | Date/Time | Date/Time | SEP 1 Battille (510 | SEP 18 2016 (040 |
| Date/Time | | ×<г | SE = Sediment DL SO = Solid T SL = Shudge WI | Matrix * S = Soil DS |
| | | LiquidVegetationOther | Drum LiquidsTissueWipe | Drum Solids |

PRINTED ON 8/1/2016

FSR ID = FSR4438

A-6004-842 (REV 2)

CH2MHill Plateau Remediation

Company

Shipped To (Lab)

Project Title

RCRA, SEPTEMBER 2016

W16-009

Collector Dave Floyd

Protocol

RCRA

POSSIBLE SAMPLE HAZARDS/REMARKS

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# W16-009-151

TestAmerica Incorporated, Richland Sampling Origin Method of Shipment Priority: Logbook No. Contact/Requester 30 Days HNF-N-506 40/ Karen Waters-Husted Hanford Site GOVERNMENT VEHICLE Purchase Order/Charge Code Offsite Property No. Bill of Lading/Air Bill No. Ice Chest No. Telephone No. 509-376-4650 N/A N/A N/Α 300071 Page 1 of 1

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1 PRIORITY SPECIAL INSTRUCTIONS Hold Time

N/A Special Handling:N/A

Holding Time Total Activity Exemption: Yes 🗹 No

48 Hours

Preservative Cool <=6C

Sample Analysis

300.0_ANIONS_IC: COMMON

1x125-mL P

No/Type Container

Z

B368L4 Sample No

Back Wook a 40-14-14 00 bsh12m

PRINTED ON 8/1/2016

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Date/Time

Received By

Date/Time

Relinquished By Bacon CHPRC

Relinquished By

Relinquished By

Dave Floyd CHPRC

Relinquished By

Sign

SEP 1 5 2016 /040

Received By

ray Boson

J. Bock, TARL

W SE SE

SedimentSolid

Drum Solids

Date/Time

= Sludge = Water = Oil

Wipe Liquid Tissue Drum Liquids

Vegetation

Received By

FSR ID = FSR8636

Disposed By

A-6004-842 (REV 2)

Date/Time

Detection Summary

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

Lab Sample ID: 300-3998-1

SDG: WC1460

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

| Client Sample IE |) : | B36 | 38P5 | |
|------------------|------------|------------|------|--|
|------------------|------------|------------|------|--|

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|--------------|--------|-----------|-------|-------|------|---------|---|--------|-----------|
| Chloride | 13 | D | 0.40 | 0.20 | mg/L | 2 | _ | 300.0 | Total/NA |
| Nitrate as N | 2.2 | D | 0.056 | 0.028 | mg/L | 2 | | 300.0 | Total/NA |
| Fluoride | 0.26 | D | 0.10 | 0.050 | mg/L | 2 | | 300.0 | Total/NA |
| Sulfate | 63 | D | 0.50 | 0.25 | mg/L | 2 | | 300.0 | Total/NA |

RL

0.40

0.056

0.10

0.50

MDL Unit

0.20 mg/L

0.028 mg/L

0.050 mg/L

0.25 mg/L

Result Qualifier

19 D

5.0 D

0.29 D

92 D

Lab Sample ID: 300-3998-2

Lab Sample ID: 300-3998-3

Lab Sample ID: 300-3998-4

Dil Fac D Method

300.0

300.0

300.0

300.0

2

2

2

| Client Sample | ID: | B368N2 |
|---------------|-----|---------------|

Client Sample ID: B368P9

Analyte

Chloride

Fluoride

Sulfate

Nitrate as N

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|--------------|--------|-----------|-------|-------|------|---------|---|--------|-----------|
| Chloride | 28 | D | 0.40 | 0.20 | mg/L | 2 | _ | 300.0 | Total/NA |
| Nitrate as N | 8.2 | D | 0.056 | 0.028 | mg/L | 2 | | 300.0 | Total/NA |
| Fluoride | 0.20 | D | 0.10 | 0.050 | mg/L | 2 | | 300.0 | Total/NA |
| Sulfate | 220 | D | 5.0 | 2.5 | mg/L | 20 | | 300.0 | Total/NA |

Client Sample ID: B368L4

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|--------------|--------|-----------|-------|-------|------|---------|---|--------|-----------|
| Chloride | 26 | D | 0.40 | 0.20 | mg/L | 2 | _ | 300.0 | Total/NA |
| Nitrate as N | 9.4 | D | 0.056 | 0.028 | mg/L | 2 | | 300.0 | Total/NA |
| Fluoride | 0.24 | D | 0.10 | 0.050 | mg/L | 2 | | 300.0 | Total/NA |
| Sulfate | 200 | D | 5.0 | 2.5 | mg/L | 20 | | 300.0 | Total/NA |

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

Client Sample ID: B368P5

Date Collected: 09/16/16 12:22 Date Received: 09/16/16 15:10

Lab Sample ID: 300-3998-1

Matrix: Water

| Method: 300.0 - Anion | s, Ion Chromatogra | ıphy | | | | | | | |
|-----------------------|--------------------|-----------|-------|-------|------|---|----------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Chloride | 13 | D | 0.40 | 0.20 | mg/L | | | 09/16/16 20:27 | 2 |
| Nitrate as N | 2.2 | D | 0.056 | 0.028 | mg/L | | | 09/16/16 20:27 | 2 |
| Fluoride | 0.26 | D | 0.10 | 0.050 | mg/L | | | 09/16/16 20:27 | 2 |
| Nitrite as N | 0.038 | UD | 0.076 | 0.038 | mg/L | | | 09/16/16 20:27 | 2 |

Client Sample ID: B368P9 Lab Sample ID: 300-3998-2

0.50

63 D

92 D

Result Qualifier

28 D

8.2 D

0.20 D

0.038 UD

220 D

0.25 mg/L

0.25 mg/L

MDL Unit

0.20 mg/L

0.028 mg/L

0.050 mg/L

0.038 mg/L

2.5 mg/L

Date Collected: 09/16/16 11:29

Date Received: 09/16/16 15:10

Sulfate

Sulfate

Analyte

Chloride

Fluoride

Sulfate

Nitrite as N

Nitrate as N

Matrix: Water

09/16/16 20:27

Method: 300.0 - Anions, Ion Chromatography Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Chloride 19 D 0.40 0.20 mg/L 09/16/16 20:42 2 0.028 mg/L Nitrate as N 5.0 D 0.056 09/16/16 20:42 2 Fluoride 0.29 D 0.10 0.050 mg/L 09/16/16 20:42 2 2 Nitrite as N 0.076 0.038 mg/L 0.038 UD 09/16/16 20:42

Client Sample ID: B368N2 Lab Sample ID: 300-3998-3

RL

0.40

0.056

0.10

0.076

5.0

0.50

Date Collected: 09/16/16 09:31

Method: 300.0 - Anions, Ion Chromatography

Date Received: 09/16/16 15:10

Matrix: Water

09/16/16 20:42

Prepared Analyzed Dil Fac 09/16/16 20:57 09/16/16 20:57 2 2 09/16/16 20:57 2 09/16/16 20:57

Lab Sample ID: 300-3998-4 Client Sample ID: B368L4

Date Collected: 09/16/16 10:24

Date Received: 09/16/16 15:10

Matrix: Water

09/16/16 23:28

| Method: 300.0 - Anions, Ion Chromatography | | | | | | | | | | | | |
|--|--------|-----------|-------|-------|------|---|----------|----------------|---------|--|--|--|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac | | | |
| Chloride | 26 | D | 0.40 | 0.20 | mg/L | | | 09/16/16 21:12 | 2 | | | |
| Nitrate as N | 9.4 | D | 0.056 | 0.028 | mg/L | | | 09/16/16 21:12 | 2 | | | |
| Fluoride | 0.24 | D | 0.10 | 0.050 | mg/L | | | 09/16/16 21:12 | 2 | | | |
| Nitrite as N | 0.038 | UD | 0.076 | 0.038 | mg/L | | | 09/16/16 21:12 | 2 | | | |
| Sulfate | 200 | D | 5.0 | 2.5 | mg/L | | | 09/16/16 23:43 | 20 | | | |

TestAmerica Richland

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Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-5686/5

Matrix: Water

Analysis Batch: 5686

Client Sample ID: Method Blank

Prep Type: Total/NA

MB MB Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Nitrate as N 0.014 U 0.028 0.014 mg/L 09/16/16 18:57 Nitrite as N 0.019 U 0.038 0.019 mg/L 09/16/16 18:57

Lab Sample ID: LCS 300-5686/6 Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 5686

LCS LCS %Rec. Spike Analyte Added Result Qualifier Unit %Rec Limits Nitrate as N 2.26 2.37 mg/L 105 80 - 120 Nitrite as N 3.04 3.20 mg/L 105 80 - 120

Lab Sample ID: 300-3996-A-1 MS **Client Sample ID: Matrix Spike** Prep Type: Total/NA

Matrix: Water

Analysis Batch: 5686

MS MS %Rec. Sample Sample Spike Limits Analyte Result Qualifier Added Result Qualifier D %Rec Unit Nitrate as N 7.1 D 0.452 7.53 D mg/L 85 75 - 125 Nitrite as N 0.038 UD 0.609 0.525 D 86 75 - 125 mg/L

Lab Sample ID: 300-3996-A-1 DU **Client Sample ID: Duplicate** Prep Type: Total/NA

Matrix: Water

Analysis Batch: 5686

DU DU Sample Sample **RPD** Analyte Result Qualifier Result Qualifier Unit D RPD Limit Nitrate as N 7.1 D 7.20 D mg/L 20 0.8 Nitrite as N 0.038 UD 0.038 UD mg/L NC 20

Lab Sample ID: MB 300-5687/5 **Client Sample ID: Method Blank**

Matrix: Water

Analysis Batch: 5687

| | 1410 | IVID | | | | | | | |
|----------|--------|-----------|-------|-------|------|---|----------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Chloride | 0.10 | U | 0.20 | 0.10 | mg/L | | | 09/16/16 18:57 | 1 |
| Fluoride | 0.025 | U | 0.050 | 0.025 | mg/L | | | 09/16/16 18:57 | 1 |
| Sulfate | 0.13 | U | 0.25 | 0.13 | mg/L | | | 09/16/16 18:57 | 1 |

MR MR

Lab Sample ID: LCS 300-5687/6 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 5687

| | Spike | LCS | LCS | | | | %Rec. | |
|----------|-------|--------|-----------|------|---|------|----------|--|
| Analyte | Added | Result | Qualifier | Unit | D | %Rec | Limits | |
| Chloride | 16.0 | 16.5 | | mg/L | | 103 | 80 - 120 | |
| Fluoride | 4.00 | 4.15 | | mg/L | | 104 | 80 - 120 | |
| Sulfate | 20.0 | 20.7 | | mg/L | | 104 | 80 - 120 | |

TestAmerica Richland

Prep Type: Total/NA

QC Sample Results

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-3996-A-1 MS Client Sample ID: Matrix Spike **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 5687

| | Sample | Sample | Spike | MS | MS | | | | %Rec. | |
|----------|--------|-----------|-------|--------|-----------|------|---|------|----------|------|
| Analyte | Result | Qualifier | Added | Result | Qualifier | Unit | D | %Rec | Limits | |
| Chloride | 22 | D | 3.20 | 25.3 | D | mg/L | | 94 | 75 - 125 | |
| Fluoride | 0.23 | D | 0.800 | 0.976 | D | mg/L | | 93 | 75 - 125 | |

Lab Sample ID: 300-3996-A-1 MS Client Sample ID: Matrix Spike **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 5687

| Allalysis Datoll. 5001 | | | | | | | | | |
|------------------------|--------|-----------|-------|--------|-----------|------|---|------|----------|
| | Sample | Sample | Spike | MS | MS | | | | %Rec. |
| Analyte | Result | Qualifier | Added | Result | Qualifier | Unit | D | %Rec | Limits |
| Sulfate | 120 | D | 40.0 | 159 | D | mg/L | | 104 | 75 - 125 |

Lab Sample ID: 300-3996-A-1 DU **Client Sample ID: Duplicate Matrix: Water Prep Type: Total/NA**

Analysis Batch: 5687

| | Sample | Sample | DU | DU | | | | RPD |
|----------|--------|-----------|--------|-----------|------|---|---------|-------|
| Analyte | Result | Qualifier | Result | Qualifier | Unit | D | RPD | Limit |
| Chloride | 22 | D | 22.5 | D | mg/L | | 0.7 | 20 |
| Fluoride | 0.23 | D | 0.230 | D | mg/L | | 0.7 | 20 |
| | | | | | | | | |

Lab Sample ID: 300-3996-A-1 DU **Client Sample ID: Duplicate Matrix: Water Prep Type: Total/NA**

Analysis Batch: 5687

| | Sample | Sample | DU | DU | | | | RPD |
|---------|--------|-----------|--------|-----------|------|---|---------|-------|
| Analyte | Result | Qualifier | Result | Qualifier | Unit | D | RPD | Limit |
| Sulfate | 120 | D | 117 | D | mg/L | | 0.9 | 20 |

TestAmerica Richland

QC Association Summary

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

HPLC/IC

Analysis Batch: 5686

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|--------------------|-----------|--------|--------|------------|
| 300-3998-1 | B368P5 | Total/NA | Water | 300.0 | |
| 300-3998-2 | B368P9 | Total/NA | Water | 300.0 | |
| 300-3998-3 | B368N2 | Total/NA | Water | 300.0 | |
| 300-3998-4 | B368L4 | Total/NA | Water | 300.0 | |
| MB 300-5686/5 | Method Blank | Total/NA | Water | 300.0 | |
| LCS 300-5686/6 | Lab Control Sample | Total/NA | Water | 300.0 | |
| 300-3996-A-1 MS | Matrix Spike | Total/NA | Water | 300.0 | |
| 300-3996-A-1 DU | Duplicate | Total/NA | Water | 300.0 | |

Analysis Batch: 5687

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|--------------------|-----------|--------|--------|------------|
| 300-3998-1 | B368P5 | Total/NA | Water | 300.0 | |
| 300-3998-2 | B368P9 | Total/NA | Water | 300.0 | |
| 300-3998-3 | B368N2 | Total/NA | Water | 300.0 | |
| 300-3998-3 | B368N2 | Total/NA | Water | 300.0 | |
| 300-3998-4 | B368L4 | Total/NA | Water | 300.0 | |
| 300-3998-4 | B368L4 | Total/NA | Water | 300.0 | |
| MB 300-5687/5 | Method Blank | Total/NA | Water | 300.0 | |
| LCS 300-5687/6 | Lab Control Sample | Total/NA | Water | 300.0 | |
| 300-3996-A-1 MS | Matrix Spike | Total/NA | Water | 300.0 | |
| 300-3996-A-1 MS | Matrix Spike | Total/NA | Water | 300.0 | |
| 300-3996-A-1 DU | Duplicate | Total/NA | Water | 300.0 | |
| 300-3996-A-1 DU | Duplicate | Total/NA | Water | 300.0 | |

TestAmerica Richland

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

Client Sample ID: B368P5

Date Collected: 09/16/16 12:22 Date Received: 09/16/16 15:10

Lab Sample ID: 300-3998-1

Matrix: Water

| | Batch | Batch | | Dil | Initial | Final | Batch | Prepared | | |
|-----------|----------|--------|-----|--------|---------|--------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Amount | Amount | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | 300.0 | | | | | 5686 | 09/16/16 20:27 | RLC | TAL RCH |
| Total/NA | Analysis | 300.0 | | 2 | | | 5687 | 09/16/16 20:27 | RLC | TAL RCH |

Client Sample ID: B368P9 Date Collected: 09/16/16 11:29

Date Received: 09/16/16 15:10

Lab Sample ID: 300-3998-2

Matrix: Water

| | Batch | Batch | | Dil | Initial | Final | Batch | Prepared | | |
|-----------|----------|--------|-----|--------|---------|--------|--------|----------------|---------|---------|
| Prep Type | Туре | Method | Run | Factor | Amount | Amount | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | 300.0 | | 2 | | | 5686 | 09/16/16 20:42 | RLC | TAL RCH |
| Total/NA | Analysis | 300.0 | | 2 | | | 5687 | 09/16/16 20:42 | RLC | TAL RCH |

Lab Sample ID: 300-3998-3 Client Sample ID: B368N2

Date Collected: 09/16/16 09:31

Date Received: 09/16/16 15:10

Matrix: Water

| | Batch | Batch | | Dil | Initial | Final | Batch | Prepared | | |
|-----------|----------|--------|-----|--------|---------|--------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Amount | Amount | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | 300.0 | | 2 | | | 5686 | 09/16/16 20:57 | RLC | TAL RCH |
| Total/NA | Analysis | 300.0 | | 2 | | | 5687 | 09/16/16 20:57 | RLC | TAL RCH |
| Total/NA | Analysis | 300.0 | | 20 | | | 5687 | 09/16/16 23:28 | RLC | TAL RCH |

Client Sample ID: B368L4 Lab Sample ID: 300-3998-4

Date Collected: 09/16/16 10:24

Date Received: 09/16/16 15:10

| | Batch | Batch | | Dil | Initial | Final | Batch | Prepared | | |
|-----------|----------|--------|-----|--------|---------|--------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Amount | Amount | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | 300.0 | | 2 | | | 5686 | 09/16/16 21:12 | RLC | TAL RCH |
| Total/NA | Analysis | 300.0 | | 2 | | | 5687 | 09/16/16 21:12 | RLC | TAL RCH |
| Total/NA | Analysis | 300.0 | | 20 | | | 5687 | 09/16/16 23:43 | RLC | TAL RCH |

Client Sample ID: Method Blank Lab Sample ID: MB 300-5686/5 **Matrix: Water**

Date Collected: N/A

Date Received: N/A

| ſ | _ | Batch | Batch | | Dil | Initial | Final | Batch | Prepared | | |
|---|-----------|----------|--------|-----|--------|---------|--------|--------|----------------|---------|---------|
| | Prep Type | Туре | Method | Run | Factor | Amount | Amount | Number | or Analyzed | Analyst | Lab |
| | Total/NA | Analysis | 300.0 | | | | | 5686 | 09/16/16 18:57 | RLC | TAL RCH |

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Matrix: Water

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

Client Sample ID: Method Blank

Date Collected: N/A Date Received: N/A

Lab Sample ID: MB 300-5687/5

Matrix: Water

| | Batch | Batch | | Dil | Initial | Final | Batch | Prepared | | |
|-----------|----------|--------|-----|--------|---------|--------|--------|----------------|---------|---------|
| Prep Type | Туре | Method | Run | Factor | Amount | Amount | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | 300.0 | | 1 | | | 5687 | 09/16/16 18:57 | RLC | TAL RCH |

Client Sample ID: Lab Control Sample Lab Sample ID: LCS 300-5686/6

Date Collected: N/A **Matrix: Water**

Date Received: N/A

| | Batch | Batch | | Dil | Initial | Final | Batch | Prepared | | |
|-----------|----------|--------|-----|--------|---------|--------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Amount | Amount | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | 300.0 | | 1 | | | 5686 | 09/16/16 19:12 | RLC | TAL RCH |

Client Sample ID: Lab Control Sample Lab Sample ID: LCS 300-5687/6

Date Collected: N/A **Matrix: Water**

Date Received: N/A

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Type Method Run **Factor Amount Amount** Number or Analyzed **Analyst** Total/NA Analysis 300.0 5687 09/16/16 19:12 RLC TAL RCH

Client Sample ID: Matrix Spike Lab Sample ID: 300-3996-A-1 MS

Date Collected: 09/16/16 08:22 **Matrix: Water**

Date Received: 09/16/16 09:50

| _ | Batch | Batch | | Dil | Initial | Final | Batch | Prepared | | |
|-----------|----------|--------|-----|--------|---------|--------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Amount | Amount | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | 300.0 | | 2 | | | 5686 | 09/16/16 19:42 | RLC | TAL RCH |
| Total/NA | Analysis | 300.0 | | 2 | | | 5687 | 09/16/16 19:42 | RLC | TAL RCH |
| Total/NA | Analysis | 300.0 | | 20 | | | 5687 | 09/16/16 22:12 | RLC | TAL RCH |

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

TestAmerica Richland

Method Summary

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

| Method | Method Description | Protocol | Laboratory |
|--------|----------------------------|----------|------------|
| 300.0 | Anions, Ion Chromatography | MCAWW | TAL RCH |

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

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Sample Summary

Client: CH2M Hill Plateau Remediation Company

Project/Site: W16-009

TestAmerica Job ID: 300-3998-1

SDG: WC1460

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---------------|------------------|--------|------------------|----------------|
| 300-3998-1 | B368P5 | Water | 09/16/16 12:22 | 09/16/16 15:10 |
| 300-3998-2 | B368P9 | Water | 09/16/16 11:29 (| 09/16/16 15:10 |
| 300-3998-3 | B368N2 | Water | 09/16/16 09:31 (| 09/16/16 15:10 |
| 300-3998-4 | B368L4 | Water | 09/16/16 10:24 (| 09/16/16 15:10 |

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3998-1

SDG Number: WC1460

Login Number: 3998 List Source: TestAmerica Richland

List Number: 1

Creator: Bock, Julie A

| Creator. Bock, Julie A | | |
|--|--------|---------|
| Question | Answer | Comment |
| Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td> | True | |
| The cooler's custody seal, if present, is intact. | N/A | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | N/A | |
| Multiphasic samples are not present. | N/A | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |